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THE 1993 NORTH PENINSULA SOCKEYE SALMON FISHERIES
FROM NELSON LAGOON EAST TO STROGONOF POINT

By

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and

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INTRODUCTION

The Alaska Peninsula Salmon Management Area includes the South Peninsula from Kupreanof Point west to Scotch Cap and the North Peninsula from Cape Sarichef east to Cape Menshikof (Figure 1). While numerous salmon fisheries are annually prosecuted within the Alaska Peninsula Management Area, this report is limited to the 1993 sockeye fishery in the 110 mile coastal reach on the North Peninsula from Nelson Lagoon to Stroganof Point (Figure 2).

The Nelson Lagoon to Stroganof Point reach is the primary salmon harvest area on the North Peninsula and includes most of the Northern District, one of two districts on the north side (Shaul et al. *in press*). By regulation Northern District commercial salmon fishing is permitted with set gill net, drift gill net and purse gear (ADF&G 1992). However, within-area gear restrictions exist. The Nelson Lagoon Section is open to set gill net and drift gill net gear only; the Herendeen-Moller Bay Section to drift gill-netting, set gill-netting and purse seining; the Bear River Section to drift gill net and purse seine gear; and the Three Hills Section is an exclusive drift gill net area. The Ilnik Section is limited to drift gill net and set gill net fishing.

The commercial salmon season annually begins in the Nelson Lagoon to Stroganof Point reach area on 1 May with the opening of the Nelson Lagoon, Herendeen-Moller Bay, and Bear River Sections, and Ilnik Lagoon (ADF&G 1992; Figure 3). The Three Hills Section opens on 25 June, the Ilnik Section from Three Hills east to Unangashak Bluffs on 5 July, and east of Unangashak Bluffs to Stroganof Point on 15 July.

While opening dates are established by regulation, actual fishing time on North Peninsula stocks is based on the in-season evaluation of local stock abundance and defined escapement objectives. During the 1 June through 15 September period within the Nelson Lagoon to Stroganof Point area, management emphasis is on six sockeye systems: Nelson River, Bear River, Sandy River, and Ilnik River (Figure 3). The combined escapement goal for these is 372,500 - 552,500 fish (Table 1). Nelson River and Bear River are the dominant systems. The Nelson River system escapement goal midpoint is 141,000, while Bear River is 225,000.

Local origin sockeye salmon are abundant from Nelson Lagoon to Stroganof Point in June, July, and August (Figure 4). The Nelson River sockeye run begins in mid June, peaks in early July, and is over by mid August. Bear River supports two distinct runs, and early run that begins in mid June, peaks in early July, and ends in late July, and a late run which starts in mid July, peaks in early August, and is over in September. The Ilnik run timing is early and closely parallels the Bear River early run timing.

The sockeye salmon management plan for the Nelson Lagoon to Stroganof Point reach emphasizes local stock management. The Nelson Lagoon Section is managed on basis of the Nelson River run; Bear River Section for the early and late Bear River and the Sandy River runs; Three Hills for the early and late run Bear River fish, and the Ilnik and Ocean River runs; and lastly, the Ilnik Section for Ilnik, Ocean River, and Bear River stocks. There is also a non-local

stock management consideration for the Ilnik Section that permits time and area closures to protect Bristol Bay Ugashik River sockeye salmon in the event of a conservation concern.

Historically, almost all of the North Peninsula sockeye salmon commercial harvest has occurred in the Northern District reach from Nelson Lagoon east to Strogonof Point (Shaul et al. *in press*). The average catch in the Port Moller to Strogonof area for the ten-years 1983-1992 is 1,753,061 sockeye salmon (Figure 5). During these years, the harvest has been about evenly split between the two areas of Port Moller to Cape Seniavin (47%) and Cape Seniavin to Strogonof Point (53%).

Salmon management requires reasonable knowledge of the migration patterns and susceptibility of the individual stocks contributing to a fishery. The destination of sockeye salmon harvested in North Peninsula Port Moller to Strogonof Point reach has been of concern for both management and allocation reasons. In the early 1920's, there were divergent views on the destination of sockeye salmon caught in the vicinity of Port Moller (Gilbert 1923). One faction held that the run consisted largely of Bear and Sandy Rivers stocks and the other that, at least in the high catch years, most of the fish were of Bristol Bay origin. Several tagging experiments have been conducted in the immediate vicinity of Port Moller and off the mouths of Bear and Sandy Rivers (Gilbert 1923; Hennick 1964). The results indicate that non-local sockeye salmon do not school close to shore in the Port Moller to Sandy River reach. As for non-local stocks contributing east of the Sandy River mouth, Bristol Bay origin sockeye salmon were present in the early July 1988 and 1990 catch west of Cape Seniavin based on scale pattern analysis (Table 2). Scale pattern analysis studies also indicted that Bristol Bay sockeye salmon were a significant component of the early July Cape Seniavin to Strogonof Point harvest in 1987, 1988, 1989, and 1990.

RESULTS

In 1993, a total of 3,790,000 sockeye salmon were harvested in the Nelson Lagoon to Strogonof Point reach of the North Peninsula. This was the largest sockeye catch on record, exceeding the previous record of 3,484,000 set in 1992. Most of the 1993 catch occurred in the Port Moller to Strogonof Point reach (88%; Figure 5).

Approximately 220 permit holders participated in the 1993 fishery: 40 in Nelson Lagoon and 180 in the Port Moller to Strogonof Point area. Effort inside Herendeen Bay consisted of approximately six purse seine permits targeting non-sockeye salmon. The majority of the permit holders fished in the Bear River, Three Hills, and Ilnik Sections.

The 1993 Nelson Lagoon sockeye harvest was 441,000. This was the second largest since 1962 and larger than the 1983-92 average of 290,000 (Figure 6). The peak weekly catch occurred during 5-11 July with a catch of 162,000 (Figure 7).

The catch was 2,065,769 sockeye salmon in the Port Moller to Cape Seniavin reach, which is more than double the 1983-92 average (Figure 5). The peak weekly harvest occurred during 28 June to 4 July (429,000; Figure 8). Catches of about 100,000 sockeye or more per week were continuous from mid-June through early September (Figure 8).

In the Cape Seniavin to Strogonof Point reach, 1,281,667 sockeye were harvested which is above the 1983-92 average of 933,000 (Figure 5). Approximately 90% of the catch occurred during the three week period 28 June to 18 July; the peak week was 5-11 July with 683,000 (Figure 8).

The Port Moller to Strogonof Point combined catch was 3,347,446 sockeye (Figure 5). The peak weekly harvest (872,000) occurred during the period 5-11 July, with the majority taken in the Cape Seniavin to Strogonof Point reach (683,000; Figure 8). The 1993 harvest was about double the 1983-92 average (Figure 5).

The sockeye salmon escapement goal for all North Peninsula systems was met or exceeded (Table 1). The estimated total sockeye escapement in the Nelson Lagoon to Strogonof Point reach was about 880,000 (Table 1). Most of the escapement occurred in Bear River (51%), Nelson River system (26%), Sandy River (9%), and Ilnik River (8%). The Bear River escapement was about evenly distributed between early and late run fish. The Bear River early run escapement peaked on 5 July, while the late run peaked on 5 August. Nelson River, the second largest escapement systems also peaked on 5 July. The Ilnik River escapement peaked a few days earlier than expected during the last week in June.

DISCUSSION

The 3,347,446 sockeye salmon catch in 1993 likely includes an unknown number of Bristol Bay fish based on previous stock identification studies. It is also highly likely that local stocks may have been the major component of the catch. While weekly sampling of the commercial catch areas east of Nelson Lagoon was conducted in 1993, the absence of funding for stock identification analysis makes it impossible to define, with any degree of accuracy, the contribution of the local and non local stocks.

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Table 1. Sockeye salmon escapement goals and estimated total escapement in 1993 for systems located within the vicinity of the Harbor Point to Strogonof Point reach.

System	Escapement Goal	1993 Estimated Total Escapement
Nelson River System	105,000-177,000	225,000
Bear River		
Early Run	120,000-135,000	227,000
Late Run	80,000-115,000	225,000
Total	200,000-250,000	452,000
Sandy River	20,000-30,000	80,000 ^a
Ilnik River	40,000-60,000	70,000
Total	365,000-517,000	880,000

^a Estimated total escapement from a peak escapement of 48,000 sockeye.

Table 2. Summary of North Peninsula sockeye stock separation studies, 1987-93.

Area	Year	Date	Estimated Stock Composition	Source
Harbor Point - Cape Seniavin				
	1988	19 June - 2 July	96% North Peninsula 4% Bristol Bay (Ugashik)	Geiger (1989)
	1990	8-21 July	10% Bear River (North Peninsula) 48% Nelson River (North Peninsula) 42% Bristol Bay	Swanton and Murphy (1992)
	1991, 1992, 1993		Not available	
Cape Seniavin - Stroganof Point				
	1987	7-13 July	59% North Peninsula 41% Bristol Bay (Ugashik)	Geiger (1989)
		14-21 July	29% North Peninsula 71% Bristol Bay (Ugashik)	Geiger (1989)
	1988	19 June - 2 July	90% North Peninsula 10% Bristol Bay (Ugashik)	Geiger (1989)
		3-9 July	85% North Peninsula 15% Bristol Bay (Ugashik)	Geiger (1989)
		10-16 July	34% North Peninsula 66% Bristol Bay (Ugashik)	Geiger (1989)
	1989	5 July (18 hr opening)	64% North Peninsula 36% Bristol Bay (Ugashik)	Geiger (1989)
	1990	8-21 July	11% Bear River (North Peninsula) 11% Nelson River (North Peninsula) 78% Bristol Bay	Swanton and Murphy (1992)
	1991, 1992, 1993		Not available	

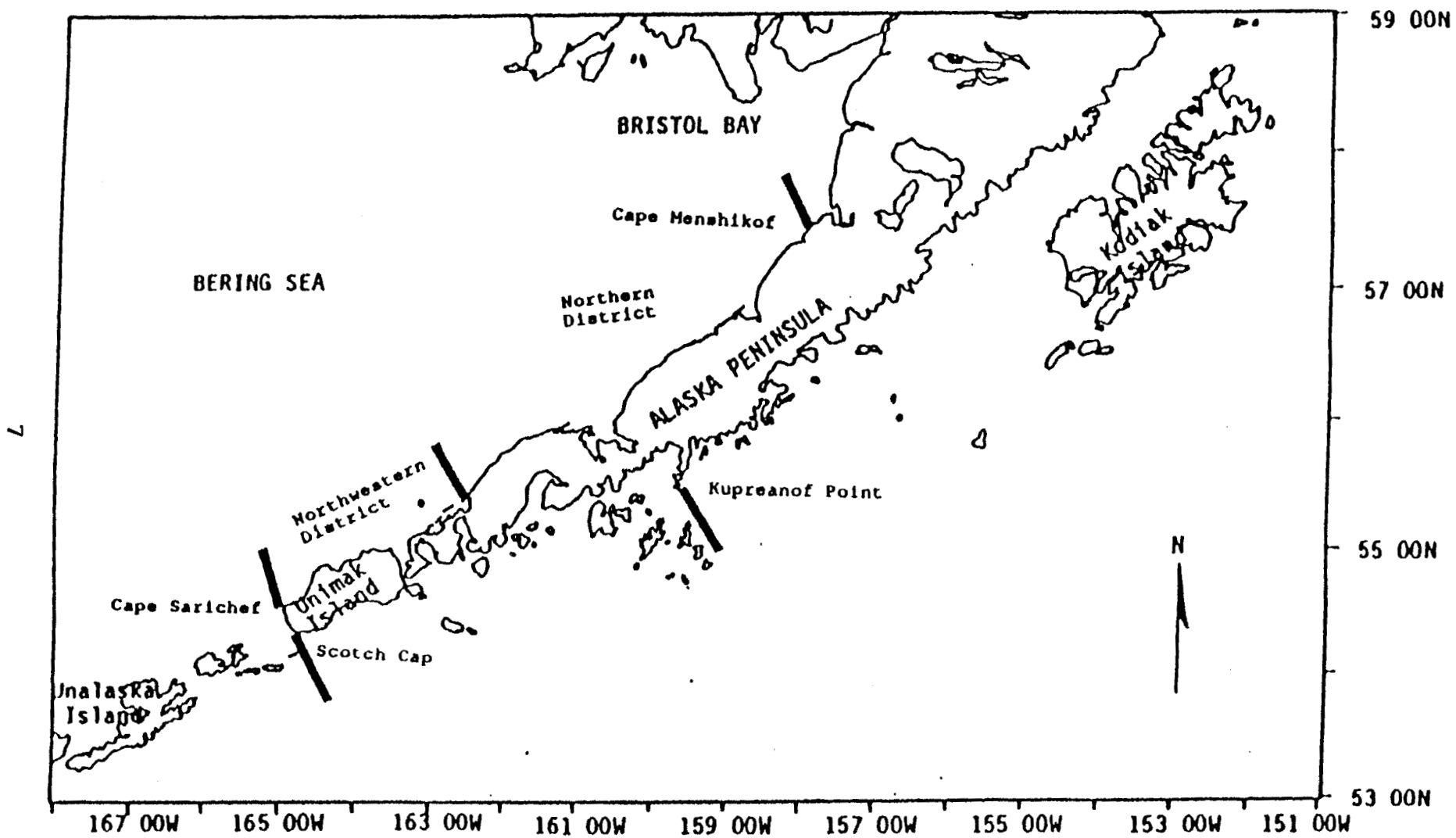


Figure 1. Map depicting boundaries of the Alaska Peninsula Management Area.

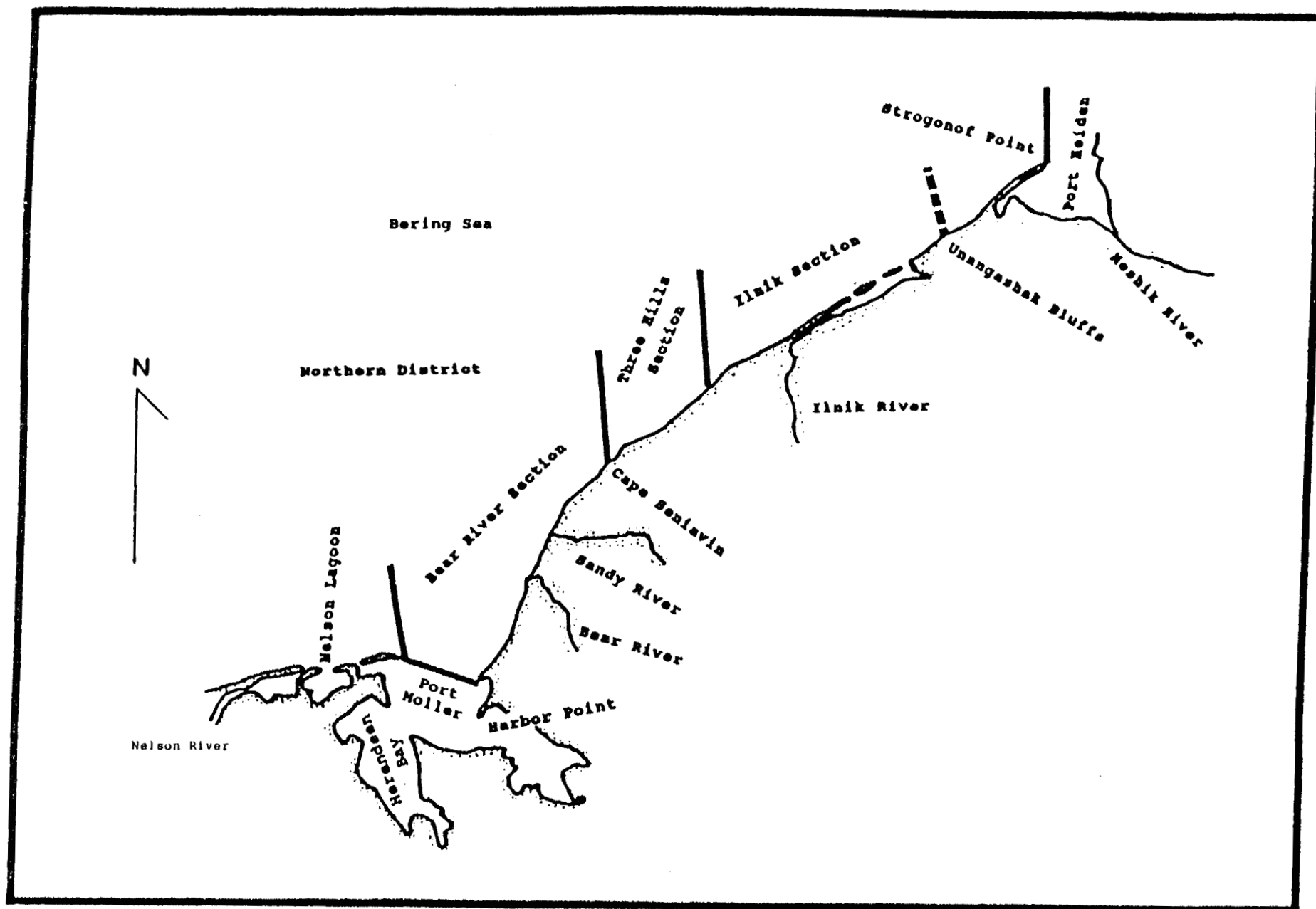


Figure 2. Map of the Harbor Point to Stroganof Point reach, with district sections depicted.

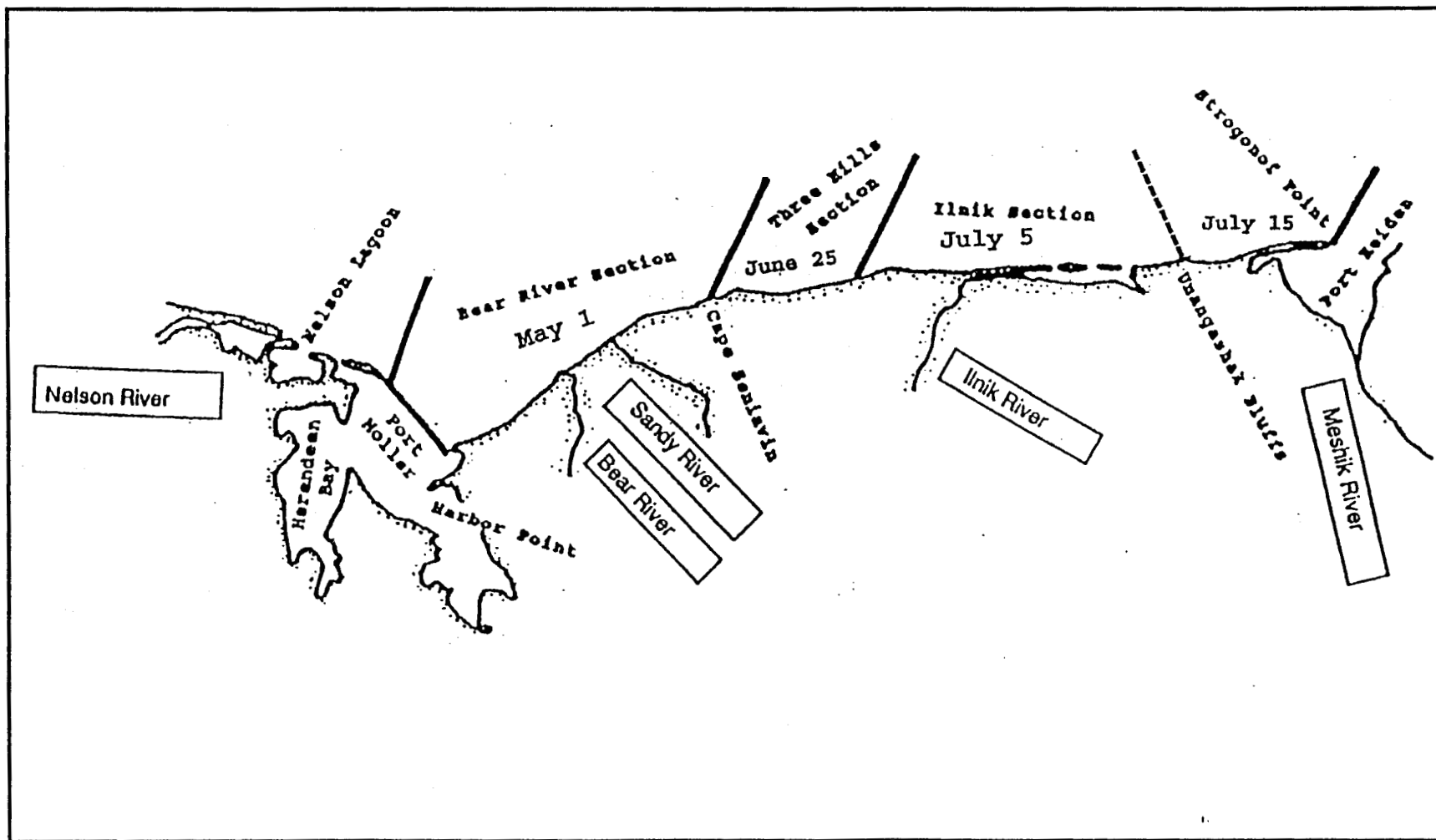


Figure 3. Nelson Lagoon to Strogonof Point reach, with district sections, commercial salmon season opening dates, and major sockeye systems depicted.

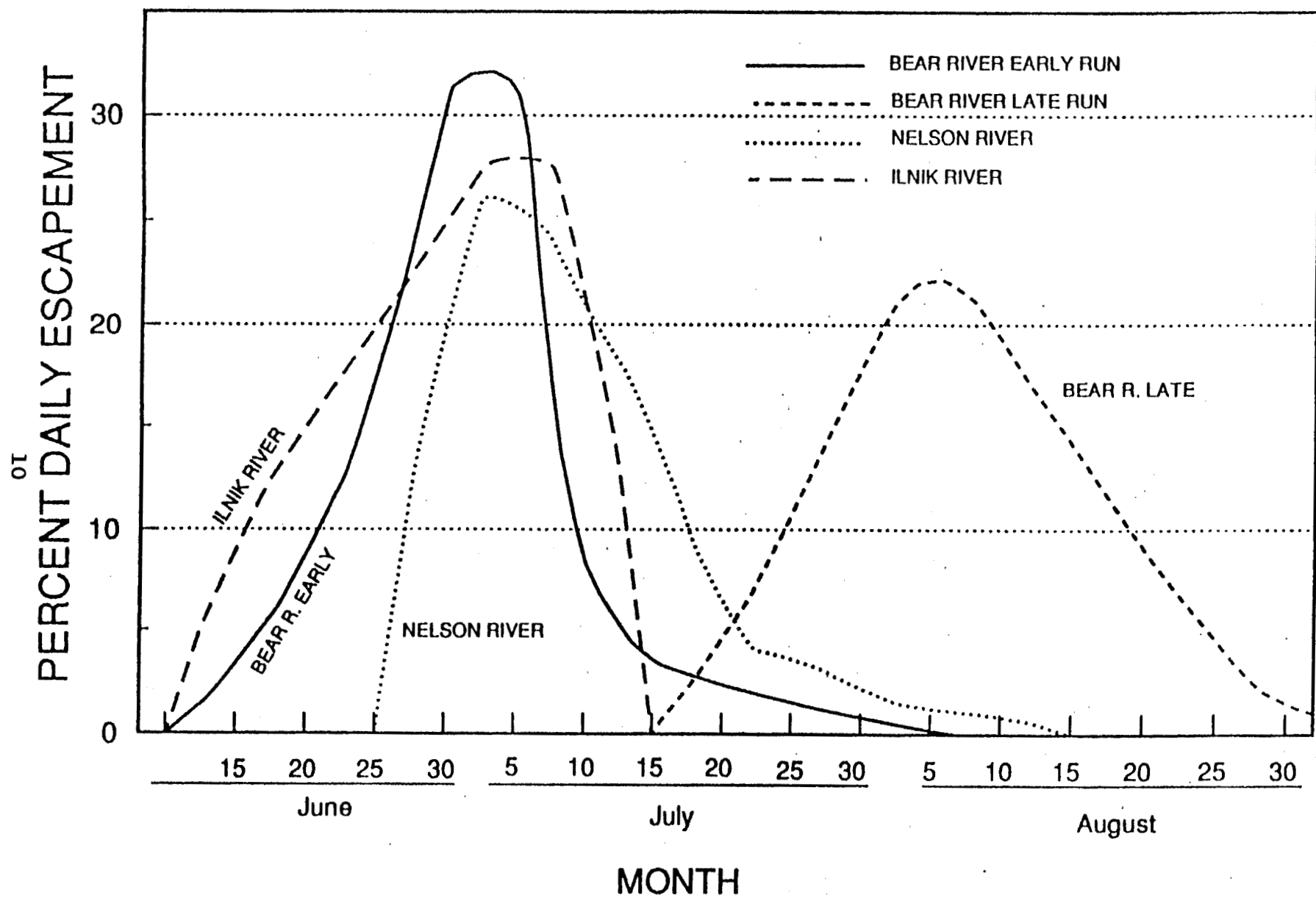


Figure 4. Approximate run timing of selected major North Peninsula salmon stocks based on escapement schedules. (From Barrett and Murphy 1992).

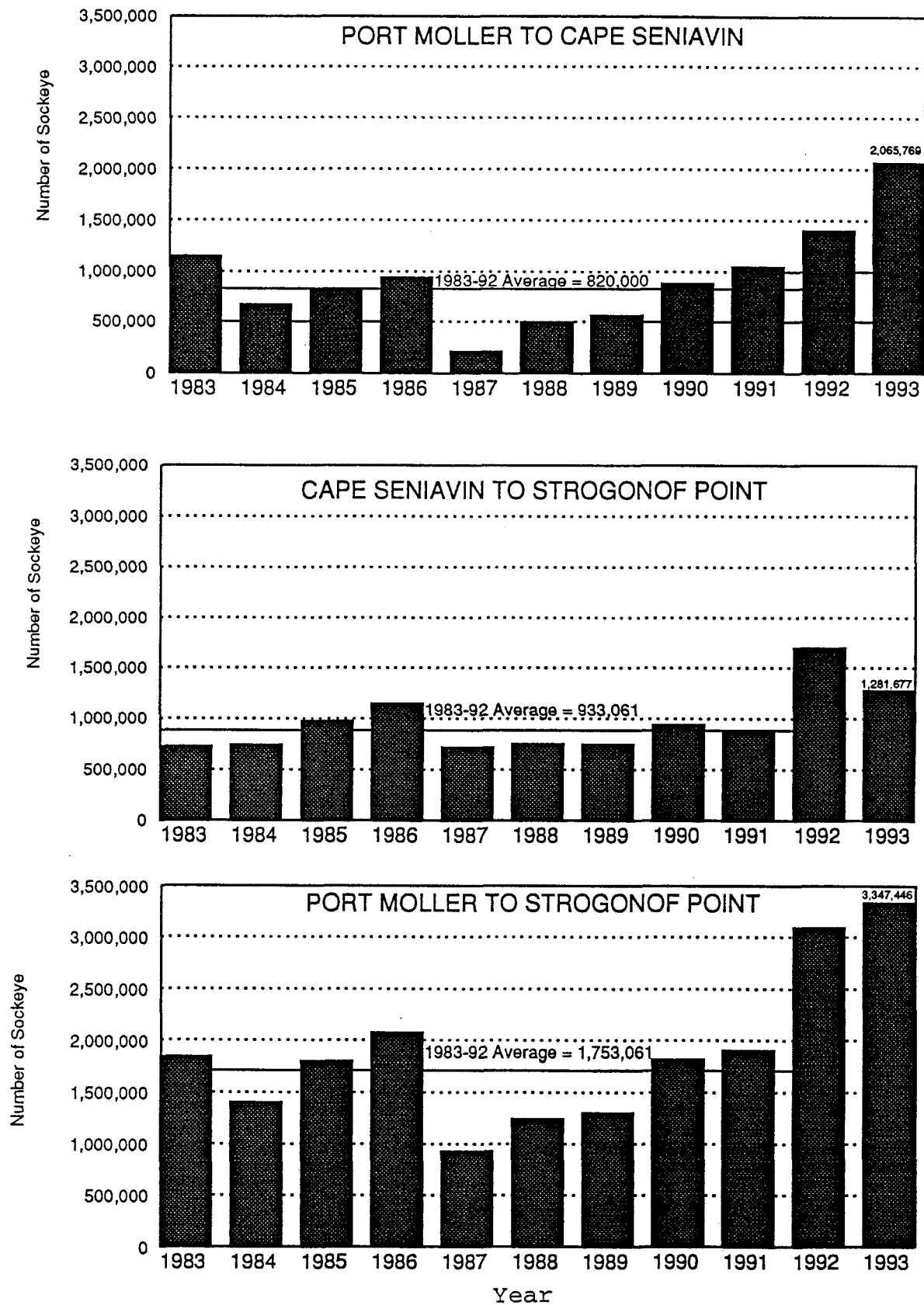


Figure 5. Port Moller to Strogonof Point annual sockeye salmon catches, 1983-93.

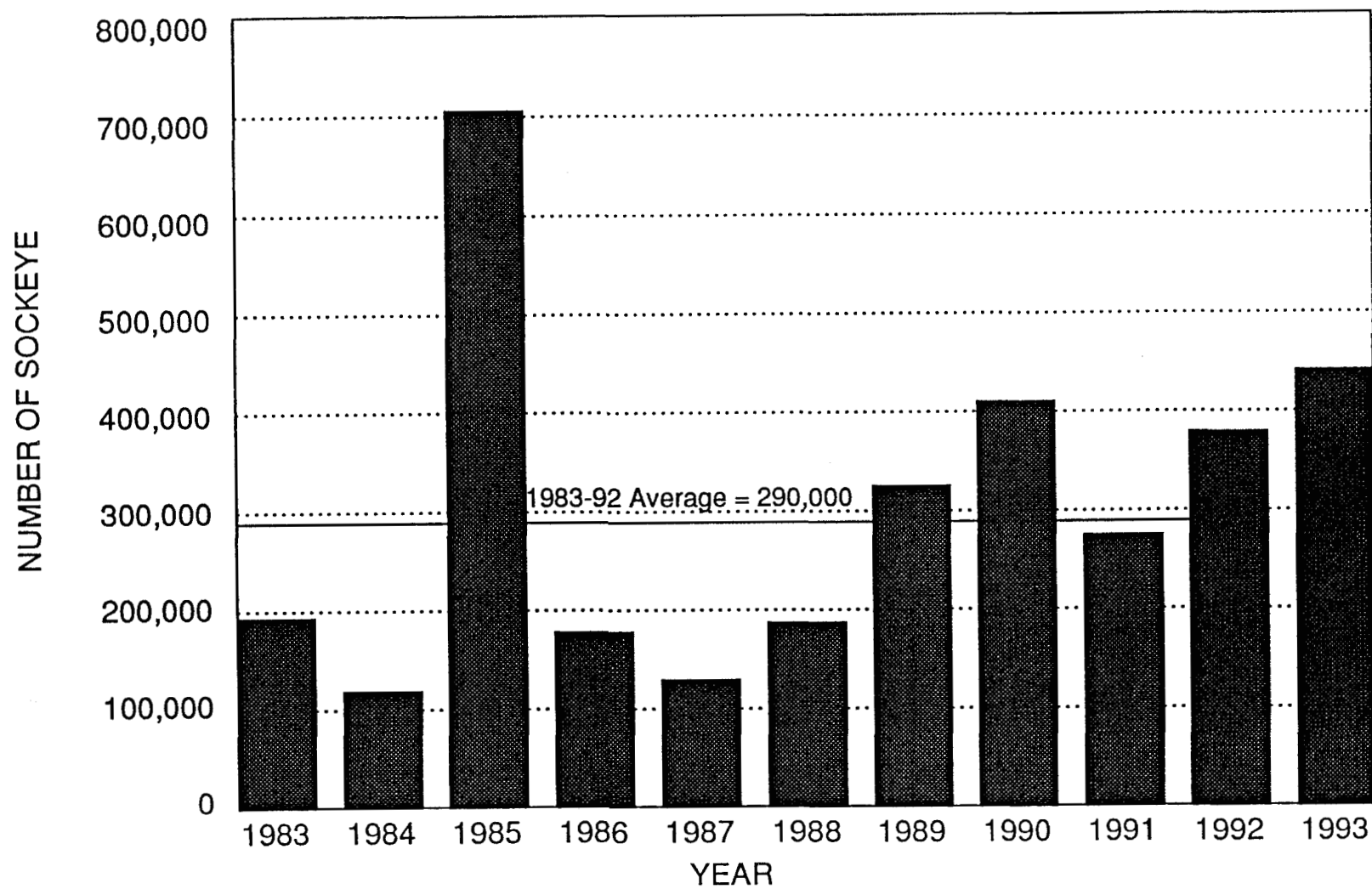


Figure 6. Nelson Lagoon commercial sockeye salmon catches, 1983-93.

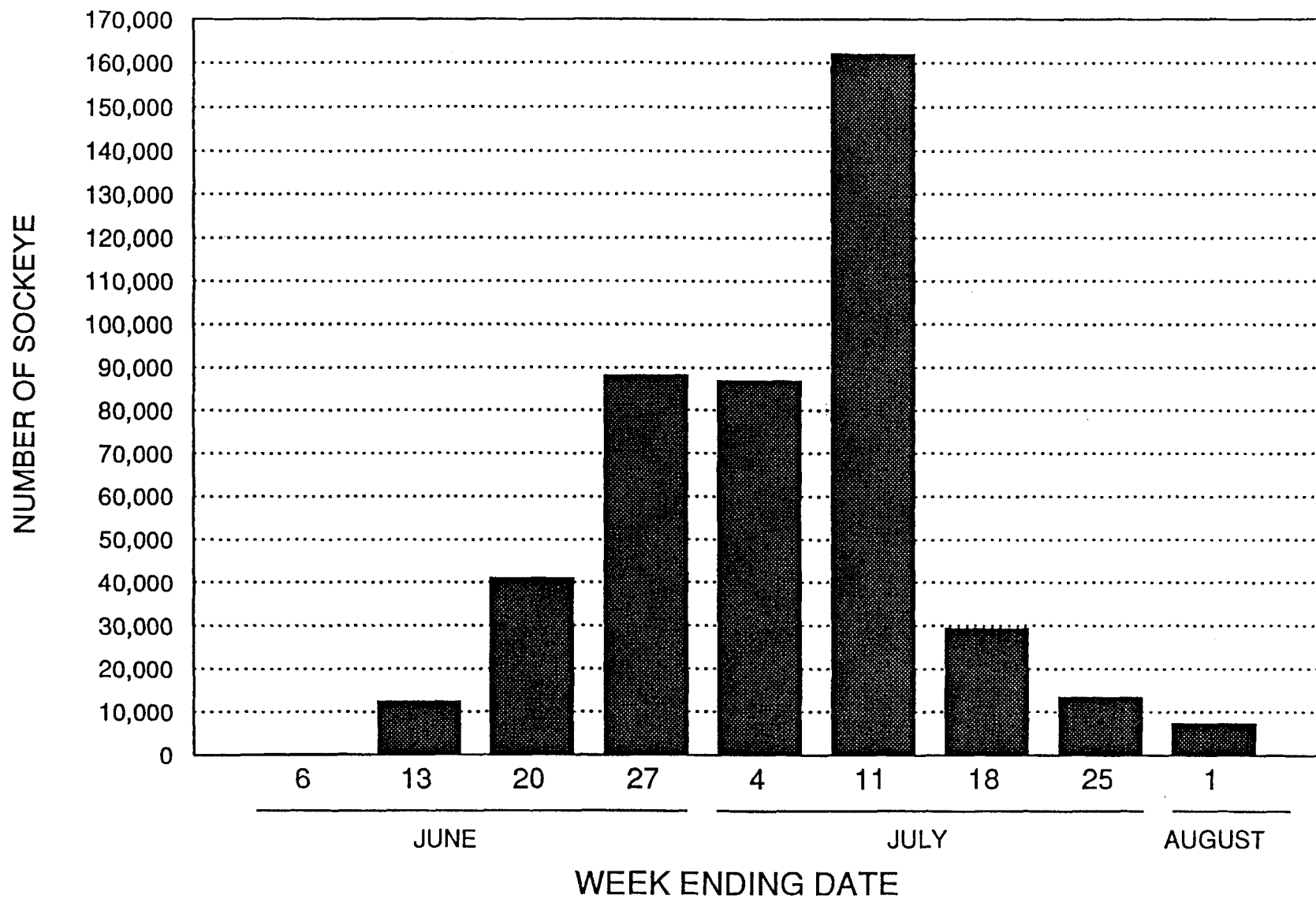


Figure 7. Nelson Lagoon commercial sockeye salmon harvest by week, 1993.

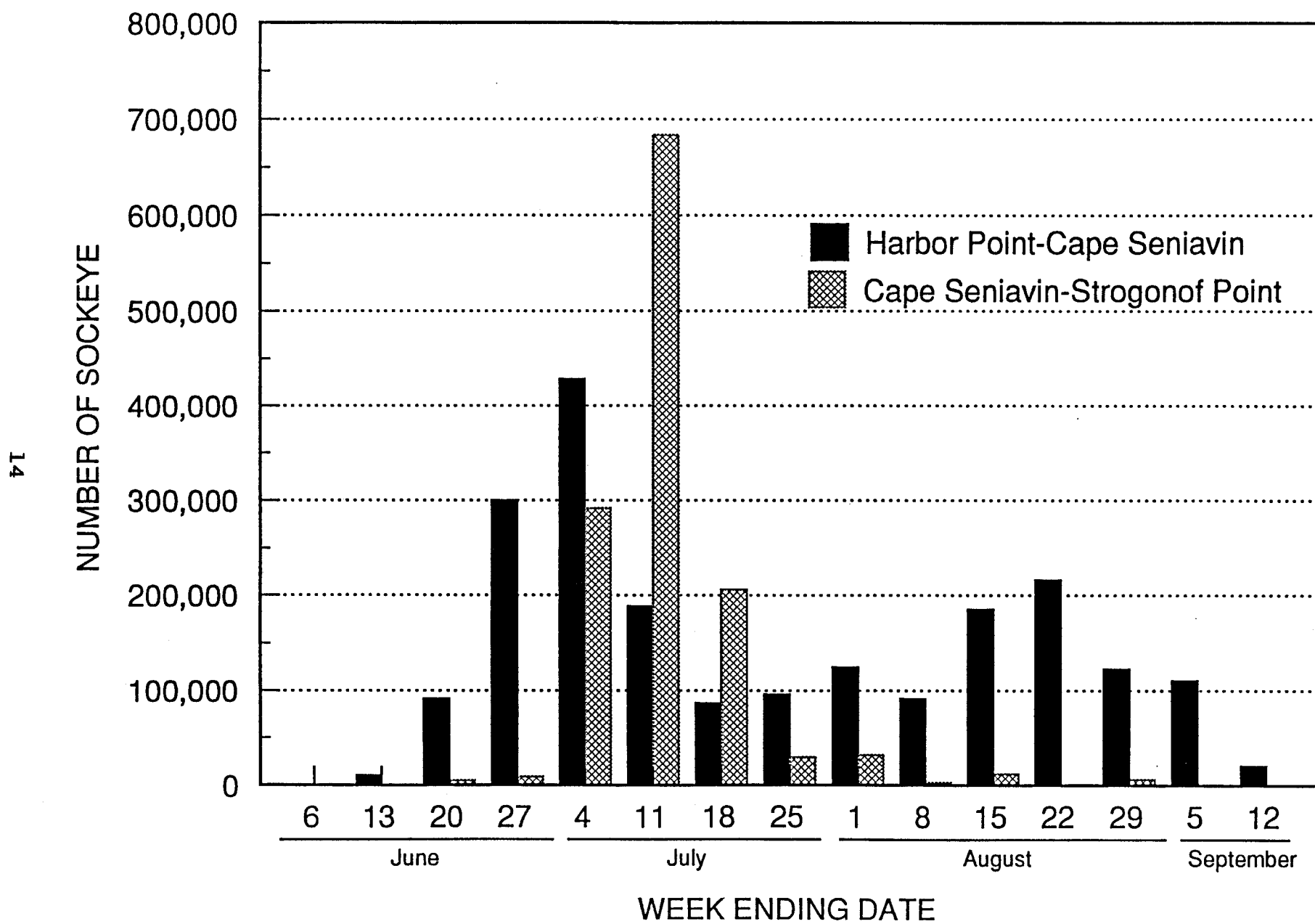


Figure 8. Port Moller to Strogonof Point sockeye salmon catch by week, 1993.

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